INTERMOUNTAIN POWER SERVICE CORPORATION

January 23, 1992

Bruce E. Blowey
Engineer of Generation
Los Angeles Department of Water & Power
P.O. Box 111, Rm. 1255E
Los Angeles, CA 90051

Dear Mr. Blowey:

Unit 1 Burner Modification Purchase Requisitions

Attached are purchase requisitions and documentation associated with the Unit 1 burner modifications to be implemented during the Spring 1992 Outage, scheduled to begin April 13, 1992. These alterations to the burners include the following requisitions:

1. Requisition 66498 - Fabrication of burner flame stabilizers. Cost of the flame stabilizers is $2,100 per burner, for a total cost for 48 burners of $100,800.

2. Requisition 66500 - Installation of the flame stabilizers, outer air register shrouding and coal burner line restrictors by an outside contractor. Total estimated cost for this installation is $125,000.

3. Requisition 66499 - RJM technical support on secondary air flow testing and balancing. RJM will provide the test equipment, software, and diagnostics support. Total estimated cost for the testing and balancing is $70,400.

Total cost of these purchase requisitions is $296,200 which will be funded from monies appropriated under IGS91-3, IPSC Budget page 8, line 4.

850 West Brush Wellman Road, Delta, Utah 84624 / Telephone: (801) 864-4414 / FAX: (801) 864-4970

Your review and approval will be appreciated. Please return by February 17, 1992.

If there are any questions regarding this request, please contact Aaron Nissen or Jerry Hintze.

Sincerely,

S. Gale Chapman
President and Chief Operations Officer

LBL:kkc
Attachments

cc: S. Gale Chapman w/o Attachments
Doug Ingraham w/o Attachments
Aaron Nissen w/o Attachments
Jerry Hintze w/o Attachments
Les Lovell w/o Attachments
File

[ ] REQUISITION FOR CAPITAL EQUIPMENT

[X] PURCHASE AUTHORIZATION FOR EXPENSE ITEMS

Date 1/15/92
Req./PA No 66498
P.O. No
Vendor
Terms
FOB
Terms
Ship Via
Conf. To:

Purpose of Materials, Supplies or Services: Burner flame stabilizer fabrication for IGS Unit 1 for the Spring Outage 1992.

Suggested Vendor: RJM Corporation
Attn: Richard Monroe
Ten Roberts Lane
Ridgefield, CT 06877
(203) 438-6198

Account No. IGS91-3
ISGx-402

Qty	Unit	Description Noun Adjective Catalog # Seller or Manufacturer	Unit Cost	Extension
48		Burner Flame Stabilizers	2100	$100,800
		Reference attached Specifications, Drawing and		
		RJM Price Summary.		
1		Travel for meetings (expenses plus per diem)		$2,500
		as requested by IPSC.		
		IPSC's contact and interface person with RJM shall		
		be Richard Monroe.		
		Delivery of 1/2 of the stabilizers (12 CCW, 12 CW)		
		shall be by March 30, 1992 and the other 1/2 by		
		April 6, 1992.		
		Same terms and conditions as the Burner Design		
		Evaluation Contract.		
		TOTAL ESTIMATED COST		$103,300.

Remarks: Please contact Aaron Nissen (6482) with any questions.

Delivery requested by [Date] 3/30/92 Originator Aaron Nissen

JKA for DKK 1/22/92 — Dept. Mgr/Supt. Date
L Gale Chapman 1-22-92 — Station Manager Date
Operating Agent Date

INTERMOUNTAIN POWER SERVICE CORPORATION Form IPSC 9A

IP7_004964

INTERMOUNTAIN POWER SERVICE CORPORATION

SPECIFICATIONS: BURNER FLAME STABILIZERS

Unit 1 Outage (April 1992)

1.0 SCOPE OF WORK

1.1 RJM Corporation shall provide 48 MZ Flame Stabilizers suitable for attachment to the Intermountain Generating Station, Unit 1, newly designed Babcock and Wilcox dual register low NOx burners.

1.2 RJM shall provide technical assistance and instructions for stabilizer installation during the Spring Unit 1 Outage which begins April 13, 1992.

1.3 Installation of the stabilizers will be provided by others.

1.4 Testing to verify specification compliance will be by others. Testing to verify specification compliance shall be witnessed by an authorized representative of RJM.

2.0 PERFORMANCE SPECIFICATIONS

2.1 The stabilizers shall be designed with 24 having clockwise inner air rotation and 24 having counter-clockwise inner air rotation.

2.2 Dimensional tolerances shall be as large as possible to allow for warping and deformation of the burners during normal operation.

2.3 The stabilizers shall be designed to allow for replacement of the coal nozzle without removing the stabilizer.

2.4 The stabilizers shall be designed to handle the temperatures and conditions that are present at the existing burners. No structural damage, warpage or deformation of the stabilizers shall occur that impedes the operation of the stabilizer under normal operating conditions.

2.5 The stabilizers shall not interfere with the coal and

primary air flow from the burner nozzles.

2.6 The stabilizers shall have factory installed provisions for the lighter shrouds, scanner and sight tube. The structural design of the stabilizer vanes shall include these openings. IPSC will provide the location and size of the openings.

2.7 The performance of Unit 2, after the installation of these stabilizers, shall meet or exceed the following requirements:

a. NOx emission levels shall be at or below 0.44 lbs/Mbtu.

b. Excess oxygen levels shall be at or below 3.2% with ranges (maximum to minimum) of 1.5%.

c. CO levels shall be at or below 150 ppm with ranges (maximum to minimum) of less than 75 ppm.

d. Loss on Ignition of the ash shall be less than 1.0% (with 70% coal passing thru 200 mesh screen).

Requirements (a), (b) and (c) will be measured at the economizer outlet using a 56 point measurement grid.

Requirement (d) will be determined from representative samples removed from the baghouse hoppers.

All of the above requirements shall only apply if air and fuel flows are balanced within plus or minus 5% of the mean values for all burners.

2.8 The post-installation performance tests will be conducted by either IPSC or a third party contractor according to procedures agreed to by both RJM and IPSC. This test will be completed within 90 days after the start-up of the Unit with the stabilizers.

3.0 CONDITIONS

3.1 Detailed drawings of the stabilizers shall be submitted three weeks prior to delivery. The drawings shall include all details necessary for installation.

3.2 Should any equipment prove defective within one year after shipment due to faulty material or improper workmanship, RJM

shall, without charge to IPSC, repair or replace the defective parts upon return of said defective part or parts to RJM. RJM shall not be responsible for any costs for removing or reinstalling said parts.

The foregoing shall not apply to equipment that has been altered or repaired after shipment to IPSC or to IPSC's agent, by anyone except RJM's authorized employees, and RJM shall not be liable in any event for alterations or repairs except those made with RJM's written consent. The guarantee shall not cover ordinary wear, erosion, corrosion or damage due to overheating or improper handling or storage after shipment to IPSC.

3.3 In the event of stabilizer performance failure as defined below, RJM shall, upon written request from IPSC, within 30 days, refund the purchase price of all (48) stabilizers, excluding costs for engineering. RJM shall not be liable for any special or consequential damages that might occur as the result of stabilizer performance failure as defined below and RJM's liability for such failure shall be limited to the contract price of the stabilizers.

Stabilizer performance failure shall be defined as the occurrence of either or both of the following events:

a. If more than six stabilizers are thermally damaged thru warpage, deformation or deterioration, or plug with ash or slag, such that they fail to perform their intended function within one year of installation provided burners are set, operated and maintained to RJM requirements. If this failure occurs, IPSC will allow RJM to investigate to determine the cause and to verify compliance with operating and maintenance requirements.

b. If Unit 1 fails to meet any of the performance conditions as outlined in Article 2.7 and as determined during the post-installation testing as per Article 2.8. If IPSC fails to perform the performance tests within the time frame allowed in Article 2.8, then the stabilizers will be deemed to have meet the performance requirements of Article 2.7.

3.4 One half of the stabilizers, 12 CCW and 12 CW, shall be delivered to the Intermountain Power Project site by no later than March 30, 1992 for attachment to the burners and remaining half delivered by April 6, 1992.

[X] **REQUISITION FOR CAPITAL EQUIPMENT**

[ ] **PURCHASE AUTHORIZATION FOR EXPENSE ITEMS**

Date 01/17/91
Req./PA No 66500
P.O. No
Vendor
Terms
FOB
Ship Via
Conf. To:

Purpose of Materials, Supplies or Services: Installation of Flame Stabilizers, Coal Line Restrictors and Outer Air Register Shrouds on Unit 2 during the Spring 1992 Outage.

Recommended Bidders:
- Townsend & Bottum
- Babcock & Wilcox

ISGX-[redacted]502
Account No. IGS #91-3
Work Order No. 91-89200-00

Qty	Unit	Description Noun	Adjective	Catalog #	Seller or Manufacturer	Unit Cost	Extension
1	job	Services & construction for installation of burner system components					
		and miscellaneous burner assembly as described in the attached scope					
		of work. Site walk-down required of all bidders prior to submittal.					
		TOTAL ESTIMATED COST Not to Exceed $125,000.					

Remarks: See Cecil James Extension 6438 or Jim Nelson Ext 6464 with questions.

Delivery requested by [Date] 4/06/92 Originator James H. Nelson

JHA for DKK 1/22/92 — Dept. Mgr/Supt. Date
Gale Chapman 1-22-92 — Station Manager Date
Operating Agent Date

INTERMOUNTAIN POWER SERVICE CORPORATION Form IPSC 9A

IP7_004968

INTERMOUNTAIN POWER SERVICE CORPORATION

SPECIFICATIONS: INSTALLATION OF FLAME STABILIZERS, REGISTER SHROUDING AND COAL LINE RESTRICTORS

Unit 1 Outage (April 1992)

1.0 GENERAL

1.1 Contractor shall provide all equipment, labor, supervision, services, transportation, tools and miscellaneous consumable materials for complete installation of all work as described herein.

1.2 Questions regarding work priority and completion requirements shall be referred to the IPSC contract administrator for resolution. All tools and material not provided by IPSC, as itemized within these specifications, shall be provided by the Contractor.

2.0 SCOPE OF WORK

2.1 IPSC shall provide, install and operate two boiler platforms for access to boiler internals on both the front and rear walls. Access to and use of these platforms shall be on a priority or first-come basis. Priority work to be determined by IPSC. An estimated outage schedule will be provided by IPSC prior to bid submittal.

2.2 The Contractor shall provide sufficient manpower, trained in B&W boiler/burner maintenance, to complete the following work in accordance with the attached schedule:

2.A BURNER LINE RESTRICTORS

2.A.1 Contractor shall changeout 18 burner line restrictors per the attached schedule. The Contractor shall provide all necessary rigging, scaffolding, and tools. Spools, sleeves, flanges and bolts shall be provided by IPSC.

2.A.2 Contractor shall install three restrictor spools on A1, H3, and C4 by:
- install necessary access scaffolding
- brace and cut the burner line

- align and weld flanges on the burner line ends
- install restrictor spool

2.A.3 Changeout 11 restrictor spools on:
B1, F4, F5, D2, D4, H4, C2, C3, G4, G5, and G6 by:
- install necessary access scaffolding
- brace the burner line
- install new restrictor spool assuring the burner line flange bolt holes align with the spool holes

2.A.4 The Contractor shall modify the restrictors on:
E3, E4, E5, and E6 by:
- install necessary access scaffolding
- brace burner line
- remove spool and replace sleeve
- re-install spool

2.B STABILIZERS

2.B.1 As directed by IPSC, the contractor shall install one impellar-type vane assembly (stabilizer) on all 48 Unit 1 burners prior to the outage. Stabilizers will be provided by IPSC. Installation of the stabilizers shall consist of the following:

2.B.2 Attachment of stabilizer stand-offs to the ID of the inner air sleeve of each burner. Attachment weld rod shall be 310 stainless steel. (see attached sketch)

2.B.3 Field adjustment (trimming) of the stabilizer perforations to ensure proper operation of the lighters, scanners and observation ports.

2.C BURNER REGISTER SHROUDS

2.C.1 Contractor shall install outer air register shrouds on all Unit 1 burners per the attached drawings. The shrouds shall be mechanically fastened to the rear outer register plate frame in a position providing a 5.875 inch air flow annulus at the outer register.

2.C.2 Completion of shrouds is to coincide directly with completion of new burner installation by Babcock & Wilcox. Shrouds shall be provided, ready to install, by IPSC.

2.D FINAL BURNER ASSEMBLY

D.1 Contractor shall install new mounting clips and diffusers in all 48 Unit 1 burners upon completion of air flow testing by IPSC.

D.2 Contractor shall re-install all burner elbows.

3.0 JOB CHARGES

3.1 Contractor shall provide a schedule of rates for each craft as well as subtotal estimates for each task described herein.

RESTRICTOR CHANGEOUT SCHEDULE

Front Wall:

B1 Change sleeve from Sch. 40 to Sch. 60
B2 No change
B3 No change
B4 No change
B5 No change
B6 No change

F1 No change
F2 No change
F3 No change
F4 Change sleeve from Sch. 60 to Sch. 40
F5 Change sleeve from Sch. 120 to Sch. 100
F6 No change

A1 Install new restrictor with Sch. 30 sleeve
A2 No change
A3 No change
A4 No change
A5 No change
A6 No change

E1 No change
E2 No change
E3 Remove Sch. 30 sleeve
E4 Remove Sch. 30 sleeve
E5 Remove Sch. 30 sleeve
E6 Remove Sch. 30 sleeve

Rear Wall:

G1 No change
G2 No change
G3 No change
G4 Change sleeve from Sch. 60 to Sch. 80
G5 Change sleeve from Sch. 60 to Sch. 40
G6 Change sleeve from Sch. 60 to Sch. 80

C1 No change
C2 Change sleeve from Sch. 40 to Sch. 60
C3 Change sleeve from Sch. 40 to Sch. 60
C4 Install new restrictor with Sch. 30 sleeve
C5 No change
C6 No change

H1 No change
H2 No change
H3 Install new restrictor with Sch. 30 sleeve
H4 Change sleeve from Sch. 60 to Sch. 80
H5 No change
H6 No change

D1 No change
D2 Change sleeve from Sch. 60 to Sch. 80
D3 No change
D4 Change sleeve from Sch. 60 to Sch. 40
D5 No change
D6 No change

[ ] REQUISITION FOR CAPITAL EQUIPMENT

[X] PURCHASE AUTHORIZATION FOR EXPENSE ITEMS

Date 1/16/92
Req./PA No 66499
P.O. No
Vendor
Terms
FOB
Terms
Ship Via
Conf. To:

Purpose of Materials, Supplies or Services: Burner air flow testing, diagnostics and balancing of the outer and inner air registers during Unit 1's Spring 1992 Outage.

Suggested Vendor: RJM Corporation
Attn: Richard Monroe
Ten Roberts Lane
Ridgefield, CT 06877
(203) 438-6198
FAX (203) 431-8255

Account No. IGS91-3
IGSX - 502

Qty	Unit	Description	Cost	Extension
1		Burner Air Flow Analysis on IGS Unit 1 during		$ 34,300
		the Spring 1992 Outage which begins 4/13/92.		
112	ea	Burner Air Flow Balancing & Retesting on an "as	$300	$ 33,600
		needed" basis to meet perf criteria & time requir		
		Reference attached Specifications and RJM		
		Proposal for contract details.		
		Same terms and conditions as the Burner Design		
		Evaluation Contract.		
		IPSC's contact and interface person with RJM shall		
		be Mr. Richard Monroe.		
1		Travel for meetings (expenses plus per diem)		$2,500
		as requested by IPSC.		
		TOTAL ESTIMATED COST		$70,400.

Remarks: Please contact Jerry Hintze or Aaron Nissen with any questions.

Delivery requested by [Date] 5/07/92 Originator Aaron Nissen

for DKK 1/22/92 — Dept. Mgr/Supt. Date

Dale Chapman 1-22-92 — Station Manager Date

Operating Agent Date

INTERMOUNTAIN POWER SERVICE CORPORATION Form IPSC 9A

INTERMOUNTAIN POWER SERVICE CORPORATION

SPECIFICATIONS: BURNER AIR FLOW TESTING AND BALANCING

Unit 1 Outage (April 1992)

1.0 SCOPE OF WORK

1.1 The Contractor shall provide testing and diagnostic services to balance secondary air flow to individual burners on a burner row basis. Both the inner (spin) and outer air zones shall be tested, balanced and retested to verify acceptance criteria.

Intermountain Generating Station, Unit 1, will be made available at the end of its Spring Outage for testing and balancing purposes. Unit 1's Outage begins April 13, 1992 and a block of four days are tentatively scheduled for testing and balancing activities (reference attached schedule).

1.2 The Contractor shall provide technical support and manpower for two test crews to conduct simultaneous air flow testing.

IPSC will provide technical support for the test crews of one person per crew.

Outage time is of the essence. To be able to conduct the testing, balancing and retesting, multiple crews and shifts will be utilized to obtain desired results. A window of four days is being provided during the Outage to complete all testing and balancing activities.

Work shifts maybe scheduled day or night and of ten to twelve hour duration to accommodate outage and testing activities. IPSC will pay premium time beyond an eight hour shift.

1.3 The Contractor shall provide a minimum of three sets (with one in standby) of test probes and analyzers for conducting the burner air flow balancing. Spare parts, probe and analyzer shall be obtainable within one working day (overnight freight service), upon the event of equipment failure.

1.4 IPSC will provide brackets or jigs for insertion in the coal nozzles to accommodate the test probe assemblies. A minimum of twelve jigs will be provided.

Maintenance support will be provided by IPSC to move the jigs during the air flow testing.

1.5 IPSC will be responsible for the installation of the shrouding required for balancing the the outer air registers. RJM will provide technical support on the installation. Testing will be conducted, most likely during the night shift, which would allow modifications for balancing to occur during the following day shift.

2.0 PERFORMANCE SPECIFICATIONS

2.1 All eight rows of six Babcock and Wilcox (B&W) dual register low NOx burners shall be balanced to within +/- 5.0% on a burner row basis.

2.2 Air flow testing will be conducted at normal secondary air flow through the windbox that is being tested.

3.0 CONDITIONS

3.1 The Contractor shall provide initial burner register positions for both the inner and outer vanes and inner register back plate position, prior to the beginning of the Outage. The burner registers will then be preset from the windbox at the beginning of the Outage, prior to testing.

The testing will be conducted with the burners in as close to final setup as possible to simulate actual operating conditions. This will include all register vane positioning, plus installation of the flame stabilizers.

3.2 Payment for testing completed is fixed price based on the baseline Air Distribution Analysis (ADA) test and a fixed price fee per burner for the air flow balancing testing.

3.3 IPSC will reserve the right to cancel additional testing and balancing due to time or other an foreseen event.